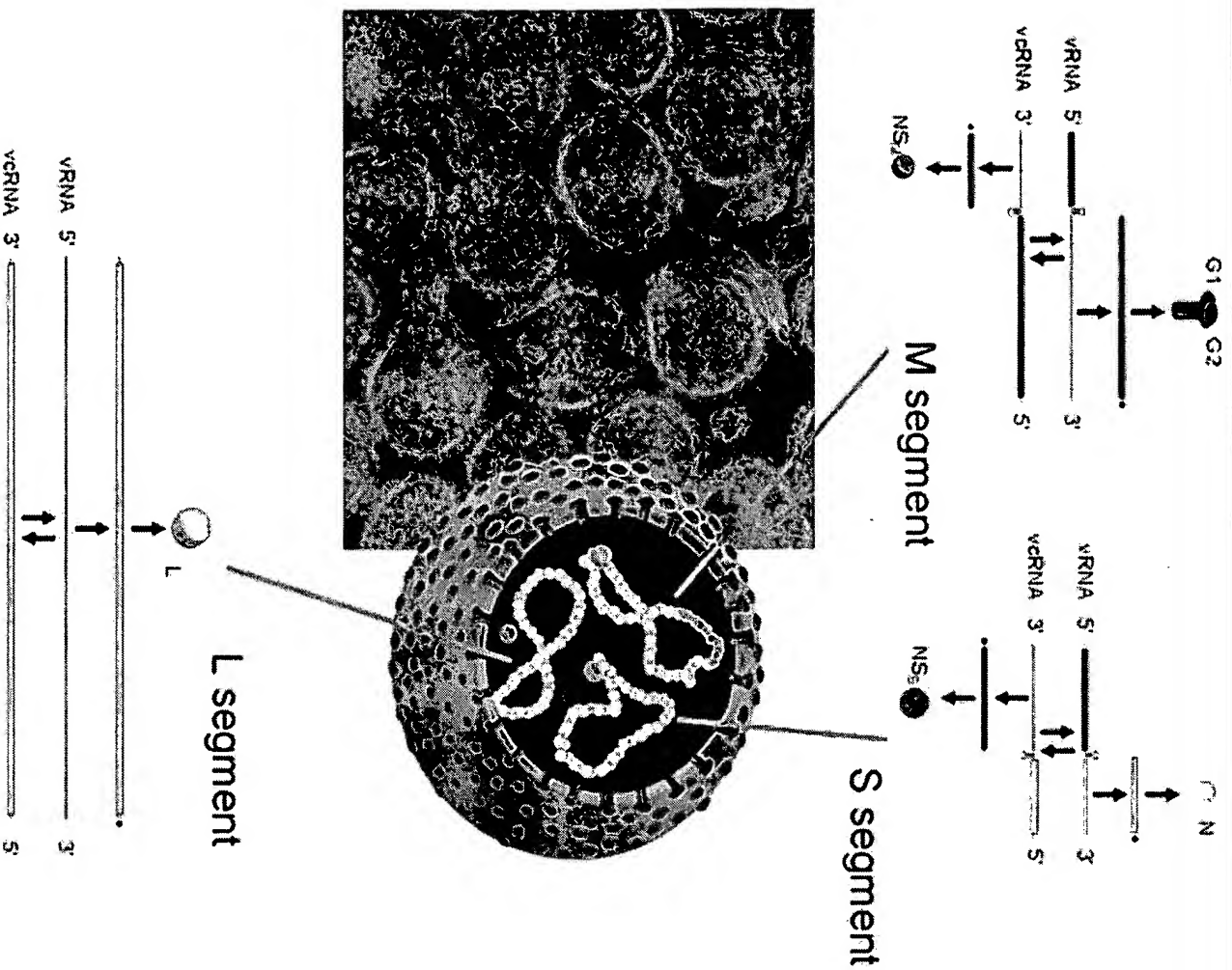


TSWV



The five genes of TSWV:

L polymerase

NS_M movement protein

G1/G2 glycoproteins

N nucleocapsid

NS_S virulence factor



TSWV suppresses gene silencing

GFP silenced

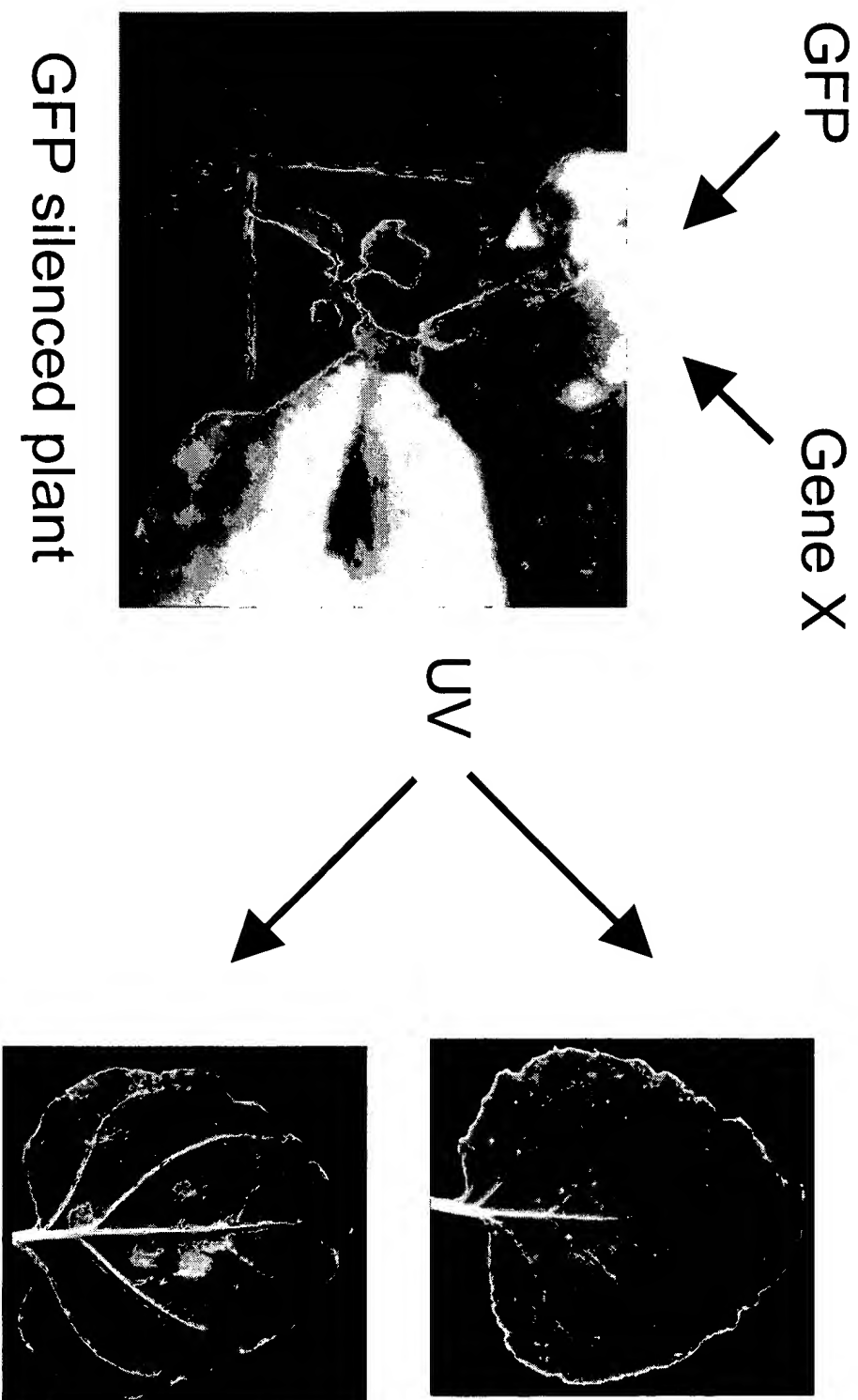


TSWV inoculated

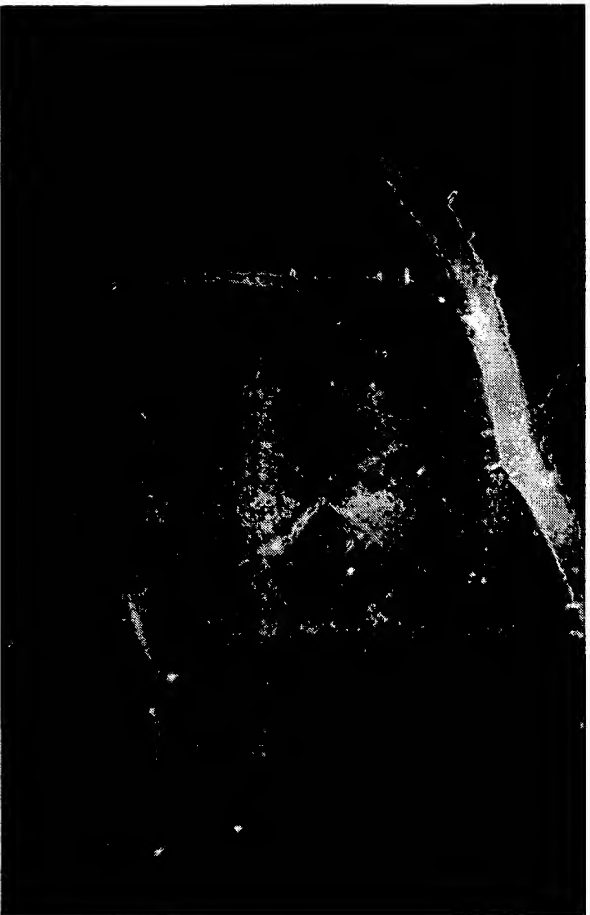


How to identify a potential silencing suppressor

Agroinfiltration:

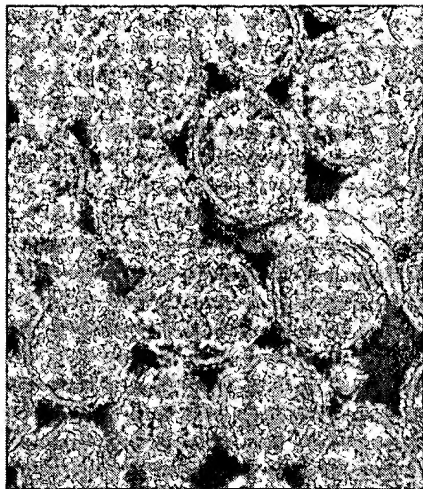


NS_s suppresses GFP gene silencing

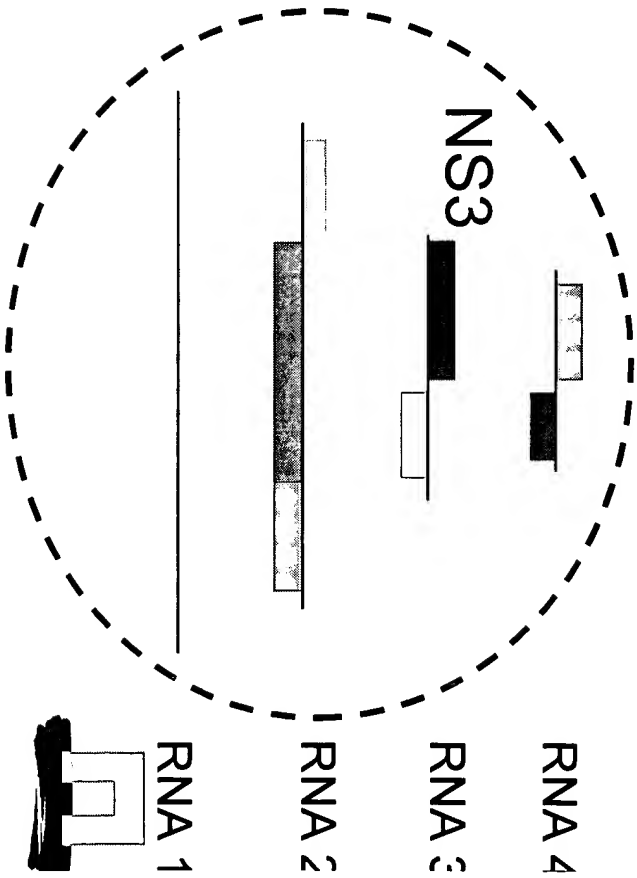
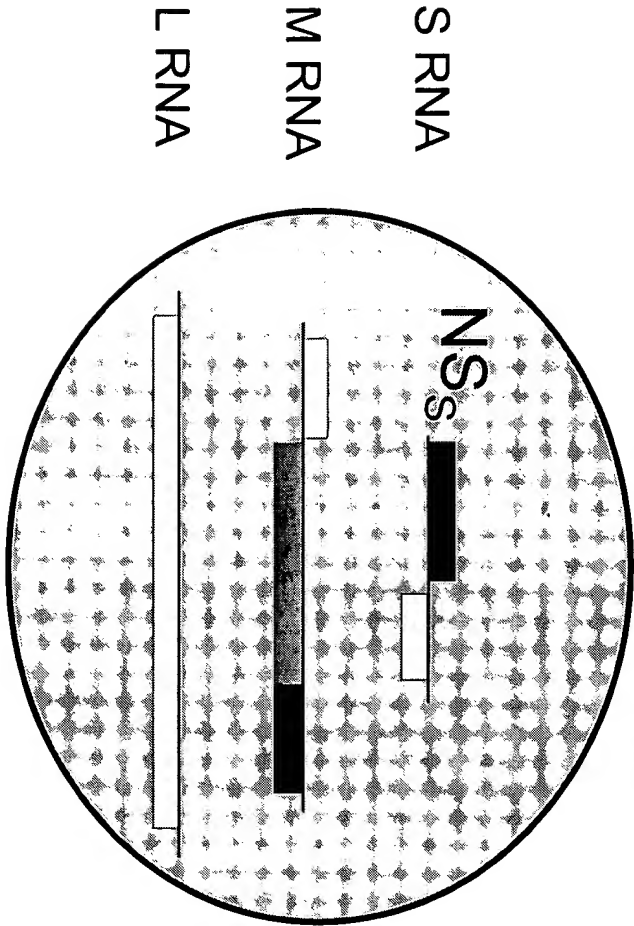
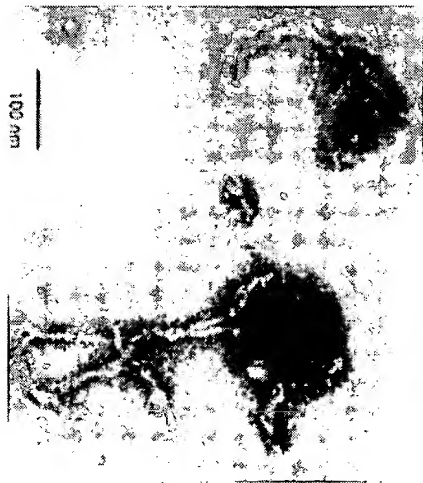


The NS_s paralogue of RHBV: NS3

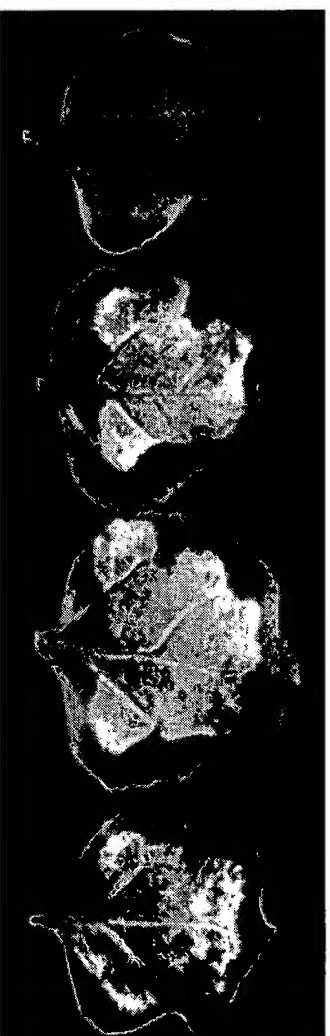
TSWV



RHBV
Rice hoja blanca tenuivirus



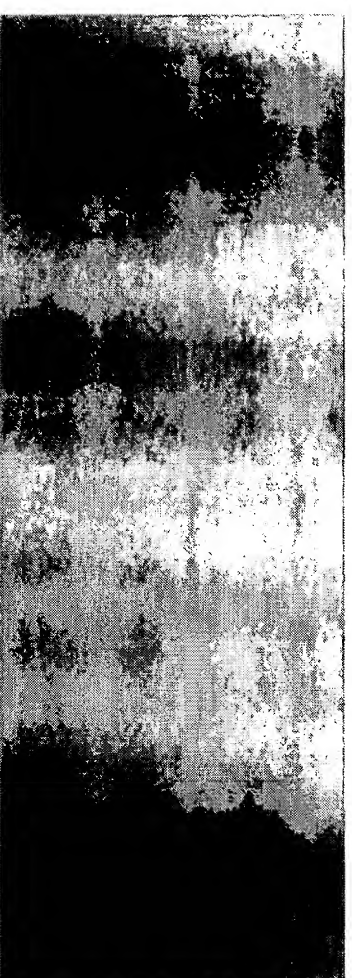
Suppression in non-transgenic plants



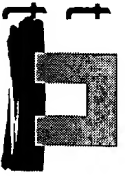
GFP GFP+HC-Pro GFP+NS_s GFP+NS3
(PVY) (TSWV) (RHBV)



siRNAs



25 nt
24 nt
23 nt
22 nt



An increasing list of characterized silencing suppressors

Virus	Genus	Genome	Suppression	Protein
ACMV	Begomovirus	DNA	complete	AC2
BSMV	Hordeivirus	(+) RNA	complete	gb
BWYV	Polerovirus	(+) RNA	complete	P0
CMV	Cucumovirus	(+) RNA	partial/systemic	2b
CPMV	Comovirus	(+) RNA	partial	?
PCV	Furovirus	(+) RNA	complete	P15
PVX	Potexvirus	(+) RNA	partial/systemic	P25
PVY	Potyvirus	(+) RNA	complete	HC-Pro
RHBV	Tenuivirus	(-) RNA	complete	NS3
RYMV	Sobemovirus	(+) RNA	complete	P1
CymRSV	Tombusvirus	(+) RNA	complete	P19
TSWV	Tospovirus	(-) RNA	complete	NSs



Conclusions

TSWV (and other tospoviruses) inhibit gene silencing

NS_s stands for suppressor of gene silencing

NS_s boosts expression of GFP in (non-)transgenic plants
(like HC-Pro)

The RHBV NS3 paralogue of NS_s also shows 'HC-Pro-like'
suppression of gene silencing

Negative strand plant viruses encode gene silencing
suppressors

